



STATE OF WASHINGTON

## STATE BUILDING CODE COUNCIL

### Washington State Energy Code Development Standard Energy Code Proposal Form

Jan 2022

Log No. 21-GP3-037

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

#### Code Section **C401.2 & New Section C401.3**

##### Brief Description:

**This proposal provides a prescriptive compliance path that expressly permits EPCA-covered fossil fuel-fired HVAC heating and service water heating equipment.** To maintain energy use equivalency with the existing prescriptive compliance path, additional C406 efficiency credits are required to compensate for the difference in energy efficiency between fossil fuel and heat pump appliances. Up to 80% of these additional credits are permitted to be renewable energy credits. **(Credit values shown in the two tables are placeholders, awaiting results from energy modeling studies.)**

##### Proposed code change text:

**C401.2 Application.** *Commercial buildings* shall comply with the Fossil Fuel Compliance Path according to Section C401.3, or with one of the following:

1. The requirements of Sections C402, C403, C404, C405, C406, C408, C409, C410 and C411.
2. The requirements of Section C407.
3. When adopted by the local jurisdiction, the requirements of Appendix F, Outcome-Based Energy Budget, Sections C408, C409, C410, C411 and any specific section in Table C407.2 as determined by the local jurisdiction. The Proposed Total UA of the proposed building shall be no more than 20 percent higher than the Allowed Total UA as defined in Section C402.1.5.

...

**C401.3 Fossil Fuel Compliance Path.** Buildings complying with the Fossil Fuel Compliance Path shall comply with the prescriptive compliance path of this code as defined in Item 1 of Section C401.2, and as modified by this section. The increased number of additional efficiency credits required by this section shall be the sum of those required by Sections C401.3.2.1 and C401.3.3.1.

**C401.3.1 Modification of code requirements.** For use of this compliance path only, the following changes shall be made to the code:

1. Strike the phrase "or fossil fuel combustion" from the first sentence of Section C403.1.4
2. Change the phrase "electric resistance" to "electric resistance or fossil fuel" in each location where it occurs in the exceptions to Section C403.1.4.
3. Add the following to the beginning of Section C404.2.1: "Fossil fuel appliances are permitted for both primary and supplemental service water heating, or else service hot water shall conform to the remainder of this paragraph."
4. For the exceptions to Section C404.2.1, insert the phrase "fossil fuel or" before each use of the terms "electric" or "electric resistance."
5. For determining renewable energy credits in Equation 4-17 of Section C406.2.5, disregard the phrase "limited to 50 percent of the required credits in Section C406.1" in the definition of the factor  $AEC_{RRA}$

**C401.3.2 HVAC fossil fuel equipment.** Fossil fuel combustion appliances are expressly permitted for HVAC heating, and shall comply with the applicable efficiency standards referenced in Section C403.3.2.2

**C401.3.2.1 Additional efficiency credits.** The number of energy efficiency credits required shall be increased according to the following equation:

$$CR = A - (A \times B/C)$$

Where:

CR = additional credits required, rounded to the nearest whole number

A = baseline credits from Table C401.3.2.1

B = installed heating capacity in kBTU/h of heating appliances that comply with any of the exceptions to Section C403.1.4

C = total installed heating capacity in kBTU/h of all heating appliances

Table C401.3.2.1 HVAC Heating Equipment Credits	
Building Area Type	Baseline credits
Multifamily	80
Health care/hospital	80
Hotel/motel	80
Office	80
Restaurant	80
Grocery	80
Other retail	80
School	80
Warehouse	40
All others	80

**C401.3.3 Service water heating fossil fuel equipment.** Fossil fuel combustion appliances are expressly permitted for service water heating, and shall comply with applicable efficiency standards referenced in Table C404.2.

**C401.3.3.1 Additional efficiency credits.** The number of energy efficiency credits required shall be increased according to the following equation:

$$CR = A \times CF$$

Where:

CR = additional credits required, rounded to the nearest whole number

A = installed fossil fuel heating capacity in kBTU/hr of service water heating appliances

CF = conversion factor from Table C401.3.3.1

Table C401.3.3.1 Service Water Heating Conversion Factors	
Building Area Type	Conversion Factor
Multifamily	X
Health care/hospital	X
Hotel/motel	X
Office	X
Restaurant	X
Grocery	X
Other retail	X
School	X
Warehouse	X
All others	X

**C401.3.4 Renewable energy credit limit.** No more than 80 percent of the efficiency credits required by Sections C401.4.1 and C401.4.1 are permitted to be Renewable Energy credits.

**C401.3.5 Electrification readiness.** Dedicated circuits at the main building panel shall be provided with sufficient power to support future conversion of all fossil fuel-fired HVAC heating and service water heating appliances to electric heat pump appliances.

Purpose of code change:

This proposal responds to the urgent need for a prescriptive code compliance path that expressly permits use of all EPCA-covered HVAC heating and service water heating equipment, while maintaining the energy stringency of the original proposed 2021 WSEC.

Your amendment must meet one of the following criteria. Select at least one:

- |   |  |
|---|--|
| <input type="checkbox"/> Addresses a critical life/safety need.   | <input checked="" type="checkbox"/> Consistency with state or federal regulations. |
| <input type="checkbox"/> The amendment clarifies the intent or application of the code.                                     | <input type="checkbox"/> Addresses a unique character of the state.                |
| <input type="checkbox"/> Addresses a specific state policy or statute.<br>(Note that energy conservation is a state policy) | <input type="checkbox"/> Corrects errors and omissions.                            |

Check the building types that would be impacted by your code change:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Single family/duplex/townhome         | <input checked="" type="checkbox"/> Multi-family 4 + stories | <input checked="" type="checkbox"/> Institutional |
| <input checked="" type="checkbox"/> Multi-family 1 – 3 stories | <input checked="" type="checkbox"/> Commercial / Retail      | <input checked="" type="checkbox"/> Industrial    |

Your name	Duane Jonlin	Email address	duane.jonlin@seattle.gov
Your organization	City of Seattle - SDCI	Phone number	206-233-2781
Other contact name <a href="#">Click here to enter text.</a>			

## **Economic Impact Data Sheet**

**Is there an economic impact:** ☐ Yes ☒ No

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants, and businesses. If you answered "No" above, explain your reasoning.

**While this proposal does make the Fossil Fuel Compliance Path the primary code compliance pathway, the existing prescriptive code compliance path (with current heat pump requirements) remains available and unchanged, so there is no mandatory impact to the cost for owners, tenants, and businesses. The choice of compliance paths is entirely at the discretion of the owner.**

**Use of the proposed Fossil Fuel Compliance Path will result in higher construction costs, as the relative inefficiency of fossil fuel equipment is compensated by adding to the required number of additional energy efficiency credits. However, this will satisfy the EPCA requirement for a code that permits covered equipment on an equal energy use basis, and will provide a pathway for use of fossil fuel-fired equipment where special conditions warrant the additional cost.**

Provide your best estimate of the **construction cost** (or cost savings) of your code change proposal? (See OFM Life Cycle Cost [Analysis tool](#) and [Instructions](#); use these [Inputs](#). **Webinars on the tool can be found [Here](#) and [Here](#)**)

\$[Click here to enter text.](#)/square foot (For residential projects, also provide \$[Click here to enter text.](#)/ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

**Although this proposal does not economically impact projects, costs will be estimated after the table values are finalized through modeling.**

Provide your best estimate of the **annual energy savings** (or additional energy use) for your code change proposal?

[Click here to enter text.](#)KWH/ square foot (or) [Click here to enter text.](#)KBTU/ square foot

(For residential projects, also provide [Click here to enter text.](#)KWH/KBTU / dwelling unit)

Show calculations here, and list sources for energy savings estimates, or attach backup data pages

List any **code enforcement** time for additional plan review or inspections that your proposal will require, in hours per permit application:

**Where the Fossil Fuel Compliance Path is utilized, code officials may need extra time to track the additional efficiency credits, both at plan review and during inspections.**

***Small Business Impact.*** Describe economic impacts to small businesses:

**In general, the impact on small businesses will not be different from the impact on larger businesses.**

***Housing Affordability.*** Describe economic impacts on housing affordability:

**No impact.**

***Other.*** Describe other qualitative cost and benefits to owners, to occupants, to the public, to the environment, and to other stakeholders that have not yet been discussed:

**Although potentially expensive, the Fossil Fuel Compliance Path does provide a viable means of building new facilities with fossil fuel equipment, while maintaining the State's drive towards reductions in energy use and carbon emissions.**